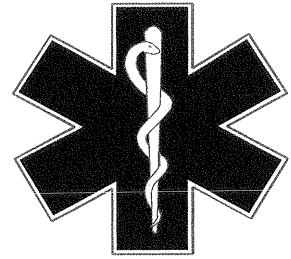


MEMORANDUM



DATE: September 25, 2007

TO: Inyo, Mono and San Bernardino Counties EMCC Members
Base Hospital ED Directors, Nurse Managers and PLNs
Receiving Hospital ED Directors and Nurse Managers
ALS, BLS and EMS Aircraft Prehospital Providers
EMS Training Institutions and ICEMA Approved CE Providers
Other Interested Parties

FROM: Virginia Hastings, Executive Director
Reza Vaezazizi, MD, Medical Director

SUBJECT: ATROVENT PROTOCOL REVISIONS APPROVED

The following referenced protocols have been revised and approved by ICEMA. The protocols were presented at the September 2007 EMCC meetings in San Bernardino, Inyo and Mono Counties. **These protocols will become effective October 1, 2007.** There will be a three (3) month training period and the protocols will become mandatory on January 1, 2008. The protocols will be available online at www.icema.net as will the training material. Additionally, CDs will be available at the EMS Officers meeting, QI meetings or via mail upon request.

It is the responsibility of each agency to notify ICEMA in writing prior to January 1, 2008 that all employees have received the approved ICEMA training regarding these five protocols. If you have any questions, please contact Sherri Shimshy, RN at 909-388-5816 or SShimshy@cao.sbcounty.gov.

Reference #2001 Standard Drug and Equipment List - Ipratropium Bromide Inhalation Solution (Atrovent) unit dose 0.5mg added to list.

Reference #3001 ALS Medication References - Ipratropium Bromide (Atrovent) description added to the reference page.

Reference #5001 Adult Respiratory Emergencies - Under Chronic Obstructive Pulmonary Disease ALS Interventions, Atrovent 0.5 mg added to all nebulizer treatments. Under Acute Asthma/Bronchospasm ALS Interventions, Atrovent 0.5 mg added to all nebulizer treatments.

Reference #7008 Pediatric Respiratory Emergencies - Under ALS Interventions, Atrovent added to all nebulized treatments with doses based on age.

Reference #7011 Pediatric Allergic Reaction - Under ALS Interventions, Atrovent added to all nebulized treatments based on age.

Reference #8001 Adult Trauma - Under burn treatment, Atrovent added in all nebulized treatments.

Reference #8003 Pediatric Trauma - Under burn treatment with dose based on age, Atrovent added in all nebulized treatments.

VH/SS/mae

STANDARD DRUG & EQUIPMENT LIST

Each Unit will be equipped with the following functional equipment and supplies. **This list represents mandatory items with minimum quantities**, to exclude narcotics, which must be kept within the range indicated. All expiration dates must be current. All packaging of drugs or equipment must be intact. No open products or torn packaging may be used.

MEDICATIONS/SOLUTIONS

Exchanged Medications/Solutions	BLS Transport	ALS Non-Transport	ALS Transport
Activated Charcoal		50gm	50gm
Adenosine (Adenocard)		30mg	30mg
Adrenaline (Epinephrine) 1:1000		30mg	30mg
Adrenaline (Epinephrine) 1:1000		2mg	2mg
Adrenaline (Epinephrine) 1:10,000		3mg	3mg
Albuterol Aerosolized Solution (Proventil)-unit dose 2.5mg		4	4
Aspirin, chewable - 81mg tablet		1bottle	1bottle
Atropine .4mg/1cc		2	2
Atropine		3mg	3mg
Calcium Chloride			
Dextrose 25%		1gm	1gm
Dextrose 50%		5.0gm	5.0gm
Diphenhydramine (Benadryl)		50gm	50gm
Furosemide (Lasix)		50mg	50mg
Glucagon		80mg	80mg
Glucose paste		1mg	1mg
Intropin (Dopamine)			
Ipratropium Bromide Inhalation Solution (Atrovent) unit dose 0.5mg		4	4
Lidocaine	1 tube		
Lidocaine/ or 1 bag pre-mixed		400mg	400mg
Lidocaine 2% (Viscous)		300mg	300mg
Magnesium Sulfate		2gm	2gm
Naloxone (Narcan)		2oz	2oz
Nitroglycerine – Spray or Tablets		10gms	10gms
10cc Normal Saline for Injection		4mg	10mg
Phenylephrine HCl (Neosynephrine) - 0.5mg per metered dose		1bottle	2 bottles
Procainamide		2	2
Sodium Bicarbonate		1bottle	1bottle
Verapamil (Isoptin)		1gm	2gm
1000c Irrigating Saline and/or Sterile Water		100mEq	100mEq
Normal Saline 100cc		15mg	15mg
Normal Saline 250cc	2	1	2

Normal Saline 1000cc		1	2
		1	1
		3	6

Controlled Substance Medications

Non-exchange – must be kept double locked	BLS Transport	ALS Non-Transport	ALS Transport
Midazolm – vials of 10mg/2cc, 2mg/2cc, or 5mg/5cc		20-44mg	20-44mg
Morphine Sulfate – ampules of 10mg or 15mg		20-60mg	30-60mg

AIRWAY/SUCTION EQUIPMENT

Exchanged Equipment	BLS Transport	ALS Non-Transport	ALS Transport
Oropharyngeal Airways – (infant, child, and adult)	1 each	1 each	1 each
Nasopharyngeal Airways – (infant, child, and adult)	1 each	1 each	1 each
Nasal cannulas – pediatric and adult	2 each	2 each	2 each
Pediatric non-rebreather O2 mask	2	2	2
Adult non-rebreather mask	2	2	2
Endotracheal tubes, uncuffed – 2.0 , 2.5, 3.0, 3.5		3 each	3 each
Endotracheal Tubes, uncuffed – 4.0 or 4.5, 5.0 or 5.5		2 each	2 each
Endotracheal Tubes cuffed – 6.0, 7.0, 7.5 and 8.0		2 each	2 each
Ventilation Bags – Infant 250ml, Pediatric 500ml (or equivalent)	1 each	1 each	1 each
Adult 1L	1 each	1 each	1 each
Approved Needle Cricothyrotomy Device – Pediatric and adult <i>or</i>		1 each	1 each
Needles for procedure 10ga, 12ga, 14ga, 15ga		2 each	2 each
Malleable Stylet – pediatric and adult		1 each	1 each
ET Tube holders – pediatric and adult		1 each	2 each
BAAM Device		1	2
Small volume nebulizer with universal cuff adaptor		2	2
One way flutter valve with adapter or equivalent		1	1
Naso/Orogastric tubes - 10fr or 12fr, 14fr, 16fr or 18fr		1 each	1 each
Naso/Orogastric feeding tubes - 5fr or 6fr, and 8fr		1 each	1 each
Suction catheters - 6fr, 8fr or 10fr, 12fr or 14fr	1 each	1 each	1each
Yaunkers tonsil tip	1	1	1
Water soluble lubricating jelly		1	1

Non-Exchange Equipment	BLS Transport	ALS Non-Transport	ALS Transport
Ambulance Oxygen source – 10L/min for 20 minutes	1		1
Portable Oxygen with regulator – 10L/min for 20 minutes	1	1	1
Pulse Oximetry device		1	1
End-titile CO2 device – pediatric and adult (may be integrated into bag)		1 each	1 each
Stethoscope	1	1	1
Flashlight/penlight	1	1	1
Laryngoscope handle with batteries – or 2 disposable handles		1	1
Laryngeal blades - #0, #1, #2, #3, #4 curved and/or straight		1 each	1 each
Magill Forceps – Pediatric and Adult		1 each	1 each
Wall mount suction device	1		1

Portable suction device (battery operated)	1	1	1
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IV /NEEDLES/ SYRINGES/MONITORING EQUIPMENT

Exchanged Equipment	BLS Transport	ALS Non-Transport	ALS Transport
Syringes w/wo safety needles – 1cc, 3cc, 10cc, 20cc, 60cc catheter tip		2 each	2 each
Safety Needles – 20ga or 21ga and 23ga or 25ga		2 each	2 each
IV Catheters – sizes 14, 16, 18, 20, 22, 24		2 each	2 each
IO Needles – Pediatric and Adult		2 each	2 each
3-way stopcock		1	1
IV extension tubing		2	2
Microdrip Administration Set (60 drops/cc)		1	2
Macro drip Administration Set (10 drops/cc)		3	3
Blood Tubing (Y type)			2
Saline Lock		2	2
EKG patches – Pediatric and Adult		3 sets each	3 sets each
Conductive medium <i>or</i> Pacer/Defibrillation pads		2	2

Non-Exchange Equipment	BLS Transport	ALS Non-Transport	ALS Transport
Blood pressure cuff – large adult or thigh cuff, adult, child and infant	1	1	1
Pressure infusion bag			1
OSHA approved needle disposal system		1	1
Thermometer	1	1	1
Glucose monitoring device		1	1
Defibrillator (adult and pediatric capabilities) with TCP and printout		1	1

Optional Non-exchange Equipment/Medications	BLS Transport	ALS Non-Transport	ALS Transport
Ammonia Inhalants		2	2
Bone Injection Gun (Adult and Peds 2 each)		2	2
Buprenorphine		1	1
Pitocin		20 units	20 units
Approved automatic ventilator		1	1
D5W in bag		1	1
Esophageal Tracheal Airway Device (ETAD) LA		2	2
Esophageal Tracheal Airway Device (ETAD) SA		2	2
IV infusion pump		1	1
IV warming device		1	1
Chemistry profile tubes		3	3
Vacutainer		1	1
Manual powered suction device	1	1	1
Multi-lumen peripheral catheter		2	2
Needle Thoracostomy Kit (prepackaged)		2	2
Translaryngeal Jet Ventilation Device		1	1
12-Lead EKG Monitor		1	1
AED/defib pads	1		

CAREvent ^R BLS/ALS Handheld Resuscitator	1	1	1
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DRESSING MATERIALS/ OTHER EQUIPMENT/SUPPLIES

Exchanged Items	BLS Transport	ALS Non-Transport	ALS Transport
Antiseptic swabs/wipes			
Providence/Iodine swabs/wipes			
Air occlusive dressing (Vaseline gauze)	1	1	1
Sterile bandage compress or equivalent	6	2	6
Sterile gauze pads – 4x4 inch	4	4	4
Roller bandages – 4 inch	6	3	6
Adhesive tape – 1 inch	2	2	2
Universal Dressing 10x30 inches	2	2	2
Cervical Collars – Rigid Pediatric & Adult <i>or</i>	2 each	2 each	2 each
Cervical Collars – Adjustable Adult & Pediatric	2 each	2 each	2 each
Head immobilization device	2	2	2
Sterile Sheet for Burns	2	2	2
OB Kit	1	1	1
Emesis basin or disposable bags & covered waste container	1	1	1
Ankle & wrist restraints, soft ties acceptable	1	0	1
Pneumatic or rigid splints capable of splinting all extremities	4	2	4
Bedpan or fracture pan	1		1
Urinal	1		1

Non-exchange Equipment/Supplies	BLS Transport	ALS Non-Transport	ALS Transport
Bandage Shears	1	1	1
Short extrication device	1	1	1
Traction splint	1	1	1
Triage Tags	30	30	30
Blood Borne Pathogen Protective Equipment - (nonporous gloves, goggles face masks & gowns meeting OSHA Standards)	2	2	2
Drinkable water in secured plastic container or equivalent	1 gallon		1 gallon
Ambulance gurney	1		1
Straps to secure patient to gurney	1 set		1 set
Pillow, pillow case, sheets & blanket	1 set		1 set
Long board with restraint straps	1	1	1
Pediatric immobilization board	1	1	1

Optional Equipment/Supplies	BLS Transport	ALS Non-Transport	ALS Transport
Backboard padding	1	1	1
Autopulse TM Resuscitation System	1	1	1

ALS MEDICATION REFERENCES

ACTIVATED CHARCOAL - Adsorbent - Adsorbs toxic substances ingested into the gastrointestinal tract thus inhibiting any gastrointestinal adsorption. Use limited to BHO.

Side effects: Be aware of possible aspiration. Will color stools black although medically insignificant.

Typical Preparations: 12.5, 25 or 50gm size squeeze bottles. Some preparations contain sorbitol.

Dose: Adult: 50gms PO

Pediatric: 1gm/kg PO

ADENOSINE - Naturally occurring nucleotide present in all cells of the body- Slows conduction through the AV node and dilates coronary arteries and peripheral vessels. Adenosine has a half-life of 10 to 12 seconds and is rapidly metabolized by blood and tissues to Inosine, a crystalline nucleotide. Used as the drug of choice in treating episodes of Narrow Complex Tachycardias.

Side Effects: Transient, lasting less than a minute, and may include chest pain, shortness of breath, flushing and various dysrhythmias including transient Asystole or V-Fib. Adenosine is often referred to as a "chemical cardioversion" Give with caution to patients with an asthma history, because of a potential for bronchospasm.

Typical Preparations: 6mg/1ml Vials

Dose: Adult: 6mg rapid IV bolus to IV port closest to the patient, followed immediately by a rapid bolus of 20ml NS. If there is no change in rhythm within 2 minutes, give a 12mg IV rapid bolus followed as before with 20ml NS. May give a 3rd bolus of 12mg if there is no change in rhythm.

ALBUTEROL SULFATE - Bronchodilator- A Beta₂-adrenergic receptor stimulant affecting the respiratory tract in the form of bronchial smooth muscle relaxation. May be used PTC as a bronchodilator for reversible bronchospasm in patients with bronchitis, emphysema and asthma. Use limited to BHO for CHF and acute Pulmonary Edema.

Side Effects: May cause palpitations, hypertension, anxiety, nausea and dizziness. Always monitor vitals and use with caution for patients with a history of cardiovascular disease or hypertension.

Note: Other sympathomimetic aerosol bronchodilators or Epinephrine should not be used concomitantly with Albuterol. Beta blocking agents and Albuterol inhibit the effect of each other.

Typical Preparations: Premixed unit dose of 2.5mg in 2.5ml NS

Dose: Adult: Use 2.5mg of Albuterol solution in small volume nebulizer over 5-15 minutes.

Pediatric: Same as adult dose.

ASPIRIN – Anti-platelet - Indicated for any patient experiencing symptoms associated with myocardial infarction or transient ischemic episode.

Side Effects: Aspirin may cause nausea, vomiting or hemorrhage as well as exacerbate pain in patients with a history of GI irritation. Aspirin should not be given to any patient with a history of GI hemorrhage, intracranial hemorrhage, major surgery within the last 1-2 weeks, history of aortic aneurysm, or previous thrombosis.

Typical Preparations: 81mg chewable tablets. 325mg tablets

Dose: Adult: 162mg (two 81mg chewable tablets)

Pediatric: Not recommended in the pre-hospital setting

ATROPINE SULFATE - Parasympathetic agent - Inhibits the effects of parasympathetic nervous system by blocking acetylcholine receptors. It increases the heart rate in certain bradycardias originating above the ventricles. In addition, Atropine is also used in the treatment of organophosphate and nerve agent poisonings.

Side Effects: The effects of Atropine are short acting. Consider TCP instead of Atropine for a documented MI, 3rd

degree wide complex AV block, and 2nd degree type II AV block

Typical Preparations: 1mg/10ml Preload syringe

ATROPINE SULFATE Cont.

Dose: Adult: Bradycardia: 0.5mg IV to max of 3mg or 0.04mg/kg.

PEA/Asystole: 1mg IV to max of 3mg or 0.04mg/kg.

All ET dosages should be given at double the IV dose, followed by 10ml NS

Organophosphate and Nerve Agent Poisoning: 2mg IV may repeat at 2mg increments if patient remains symptomatic

Pediatric: Cardiac Emergencies: Not indicated for pediatric patients under 9 years of age

Organophosphate Poisoning: 0.02mg/kg IV/IO/ET, minimum dose 0.1mg

CALCIUM CHLORIDE - Cardiotonic agent - An electrolyte necessary for myocardial contractions, it increases myocardial contractile force, and may also enhance ventricular excitability. The calcium ion is essential for coupling the electrical event with mechanical contraction. Use limited to BHO or RCF for calcium-channel-blocker toxicity (Nifedipine, Verapamil, etc.)

Side Effects: May produce severe bradycardia, arrhythmias, cardiac arrest or syncope. Will precipitate if mixed with Sodium Bicarbonate, flush IV tubing prior to and after administration. If IV site becomes infiltrated, necrosis may occur around insertion site. May precipitate Digitalis toxicity

Typical Preparations: 10ml Calcium Chloride (1Gm/10ml) Preload syringe

Dose: Adult: 8-16mg/kg (5-10ml)

Pediatric: Base Hospital order

DEXTROSE 25% & 50% - Solution of glucose in water - Immediate source of glucose rapidly utilized for cellular metabolism. Consider obtaining blood sugar in cases of altered mental status, including cardiac arrest, and seizure activity of unknown etiology.

Side Effects: May cause necrosis should it extravagate into tissue. Aspirate frequently to insure blood return.

Note: A blood glucose should be obtained prior to and 20 minutes after administration of Dextrose.

Typical Preparations: 25Gm (50%) in 50ml and 2.5gm (25%) in 10ml

Dose: Adult: 50ml rapid IV/IO push. May repeat after re-checking blood sugar.

Pediatric: 0.5gm/kg of 50% Dextrose IV/IO, dilute with equal amount NS or use 25% Dextrose preparation

Infants: 0.5gm/kg of 25% Dextrose IV/IO

DIPHENHYDRAMINE – Antihistamine - Used in the treatment of anaphylaxis and allergic reactions to inhibit histamine release. Histamine release causes capillary dilation and increased capillary permeability, both of which can lead to edema formation. BHO is required for the treatment of extrapyramidal reactions at this time. Will cause marked improvement, if not total resolution of those symptoms.

Side Effects: Drowsiness, dizziness, sedation, disturbed coordination. Dry mouth, may aggravate glaucoma, and cause urinary retention. The ingestion of alcohol, narcotics, CNS depressants or other antihistamines may increase the sedative effect of Diphenhydramine

Typical Preparations: 1cc (50mg/1ml) Ampule or Vial

Dose: Adult: 50mg IM or 25mg IV slowly

Pediatric: 2mg/kg IM or 1mg/kg IV slowly

DOPAMINE - Sympathetic agonist - A naturally occurring catecholamine and a chemical precursor of norepinephrine. It acts on alpha-receptors, is dose dependent, and causes peripheral vasoconstriction. The effect on beta 1 receptors causes a positive inotropic effect on the heart, without increasing myocardial oxygen demand as much as Epinephrine. Dopamine maintains renal and mesenteric blood flow, when used in lower therapeutic doses. Used in patients with significant hypotension, when fluid replacement is unsuccessful.

Side Effects: Increased heart rate. Can worsen or induce both narrow complex and wide complex arrhythmias. Deactivated by alkaline solutions such as Sodium Bicarbonate. May cause hypotension in patients taking Dilantin. Infiltration of IV will cause localized tissue necrosis. Notify receiving facility if IV infiltrates. Do not give via IO.

Typical Preparations: 200mg/5ml: Ampule or Vial and premixed IV solution

Dose: Adult: 5-20mcg/kg/min. For the average adult 400mg of Dopamine in 250ml D5W at a rate of 30-60 microdrops/minute provides this dose range. Titrate to blood pressure and other signs of perfusion.

Pediatric: **Contraindicated** in children under 8 years of age within the ICEMA region.

EPINEPHRINE - Endogenous catecholamine - Epinephrine is an adrenergic agent with both alpha and beta receptor stimulating actions; effects include increased heart rate, contractility electrical activity, blood pressure, systemic vascular resistance and automaticity. Epinephrine may initiate electrical activity in asystole and convert fine VF to coarse VF, thereby improving chances for successful defibrillation. In addition, it is used as a smooth muscle relaxant in severe reactive airway disease to decrease bronchospasm in anaphylaxis.

Side Effects: Effects may be intensified in patients taking anti-depressants. All patients should be observed for tachyarrhythmias. Epinephrine will precipitate if mixed with Sodium Bicarbonate.

Typical Preparations: 1ml 1:1,000 Ampule, 10ml 1:10,000 Syringe and 30ml 1:1000 Multi-dose Vial

Dose: Adult: Cardiac Arrest: 1.0mg IV/IO during 2 minute cycle of CPR after every defibrillation

Pediatric: Cardiac Arrest - 1 Day to 8 Years of Age: 0.01mg/kg IV/IO during 2 minute cycle of CPR after every defibrillation. Et dose is 10 times the IV dose, 0.1mg/kg diluted in NS to total 2-5ml

Post Resuscitative Care - 1 Day to 8 Years of Age: 0.005 mg/kg (1:10,000) IO/IV every 10 minutes to maintain adequate tissue perfusion.

Cardiac Arrest - 9 to 15 Years of Age: Same as Adult dosage

Adult: Acute Allergic Reaction and/or Bronchospasm: 0.3mg SC (1:1,000 solution) May repeat one time. Maximum total dosage 0.5mg for severe anaphylaxis

Pediatric: Acute Allergic Reaction and/or Bronchospasm: 0.01 mg/kg SC (1:1,000) up to 0.3mg SC Maximum total dosage 0.05 mg/kg for severe anaphylaxis

FUROSEMIDE - Diuretic- Lasix is a potent diuretic inhibiting sodium chloride re-absorption in the kidney. It also causes venous dilation. Used in the later stages of CHF and pulmonary edema to remove excess fluid. Use with extreme caution in patients who may have Pneumonia, as these patients may be dehydrated.

Side Effects: Dehydration and electrolyte depletion, which may lead to digitalis and/or lithium toxicity, hypokalemia, hyponatremia, hypoglycemia, hypotension, EKG changes, and chest pain.

Typical Preparations: 10mg/ml Vials.

Dose: Adult: 40-100mg IV or 2 times the daily dose. Maximum dose 100mg IV slowly.

May only be given by Base Hospital order or in RCF

Pediatric: 1mg/kg IV slowly with Base Hospital order only.

GLUCAGON - Pancreatic hormone- Elevates blood glucose level by causing a breakdown of glycogen stored in the liver to glucose. Also inhibits the synthesis of glycogen from glucose. May be used IM with suspected Hypoglycemia when IV access is unobtainable. Administer with caution to patients with a history of cardiovascular or renal disease. With BHO, Glucagon may be administered to patients with history of possible esophageal foreign body aspiration

Side Effects: Nausea and vomiting. Hypersensitivity.

Typical Preparations: 1ml Ampule containing 1mg Glucagon. Use only diluent provided to make a 1mg/ml solution.

Dose: Adult: 1mg IM. The onset of action is within 5 to 20 minutes. May also be given IV.

Pediatric: 0.025mg/kg, IM. May repeat 1 time after 20 minutes, if the total of both doses does not exceed 1mg.

IPRATROPIUM BROMIDE – (ATROVENT) - Anticholinergic – Ipratropium is an anticholinergic (parasympatholytic) bronchodilator used in the treatment of respiratory emergencies. It causes broncho-dilation and dries respiratory secretions. Ipratropium acts by blocking acetylcholine receptors, inhibiting parasympathetic stimulation.

Side Effects: Can cause palpitations, anxiety, dizziness, headache, nervousness, rash, nausea, vomiting.

Typical Preparations: unit dose vial of 0.5mgs in 2.5 ml saline.

IPRATROPIUM BROMIDE Cont.

Dose: Adult: Use 0.5 mg of Ipratropium Bromide in a small volume nebulizer over 5-15 minutes.
May be mixed with Albuterol, stable if used within one hour.
Pediatric: 1Day to 12 Months – Atrovent 0.25 mgs
1Year to Adult -- Atrovent 0.5 mgs

LIDOCAINE – Antidysrhythmic - With the changes recommended by AHA, there has been a change in how Lidocaine is used. For *sustained* V-Tach or Wide Complex Tachycardias and VF/Pulseless VT it continues to be recommended. It suppresses the automaticity of ventricular ectopic pacemakers. During a myocardial infarction, Lidocaine elevates the ventricular fibrillation threshold. A Lidocaine bolus should be followed by a 2-4mg/min infusion to maintain therapeutic blood levels. Lidocaine is also effective when used at 1.5mg/kg as rapid IV bolus prior to intubation of a head injured patient. In this instance, it numbs the oropharynx for approx 1 minute, thereby decreasing the chance of increasing the ICP during intubation.

Side Effects: Contraindicated in 2nd degree Type II, and 3rd degree AV blocks. Lidocaine may slow or stop the conduction of electrical impulses from the atria and ventricles. Lidocaine should never be given in conjunction with premature ventricular contractions and Bradycardia. In these cases, the underlying rhythm should be treated first. CNS depression may occur at high doses. In addition, use decreased dosages for elderly patients and those with impaired liver and renal function. Symptoms of CNS depression may include: decreased level of consciousness, irritability, confusion, muscle twitching, seizures, coma and finally, death.

Typical Preparations: 5ml Preload syringes (100mg/5ml)
250ml NS with IGM Lidocaine premixed.

Dose: Adult: VF/Pulseless VT and Stable sustained VT or Wide Complex Tach: 1.5mg/kg slow IV/IO after two cycles of CPR. May repeat at 0.75mg/kg IV/IO every 5 minutes to maximum of 3mg/kg
ET dosage is 2 times the IV/IO dosage diluted in NS to total 5 -10ml. With documented conversion from VT/VF may initiate infusion of 2mg/min
Pediatric: Cardiac arrest - One Day to 8 Years of Age: VF/Pulseless VT: 1.0mg/kg IV/ET/IO after two cycles of CPR. May repeat at 0.5mg/kg after five minutes to a maximum of 3mg/kg.
Cardiac Arrest - 9 to 15 Years of Age: Same as Adult dosage

MAGNESIUM SULFATE - Magnesium supplement and anticonvulsant – As an essential element in numerous biochemical reactions in the body it is responsible for neurotransmission and muscular excitability. Low levels of magnesium may cause refractory ventricular fibrillation and impede the replenishment of intracellular potassium. Dysrhythmias associated with low magnesium include: Torsades de pointes, refractory VF/VT, PEA and Asystole. It also acts as a peripheral vasodilator, and resolves seizures associated with toxemia of pregnancy (eclampsia).

Side Effects: May cause drowsiness, respiratory depression, hypotension and circulatory collapse. Use with caution in patients with decreased renal function, those undergoing dialysis, taking cardiac glycosides, history of hypocalcemia, and individuals in 3rd degree heart block. **NOTE-** An overdose of Magnesium may cause respiratory depression and heart block. A 10% Calcium Chloride bolus of 500mg-1gm should be given with Base Hospital order.

Typical Preparations: 10gm Vial of a 10% solution

Dose: Adult: Seizure activity in the toxemic patient: 4gms IV/IO diluted with 20ml NS given **slowly** over 3 - 4 minutes PTC. May initiate an infusion of 2gms in 100ml NS at 0.5ml/min. (30ml/hr), with an extended transport time in RCF or with a BHO.
Stable VT or Wide Complex Tachycardia – Torsades de Pointes: 2gm in 100ml NS infuse over 5 minutes.
Pediatric: Not recommended in the pre-hospital setting

MIDAZOLAM - Sedative/ hypnotic – Midazolam is a short acting benzodiazepine with amnesic properties. In the pre-hospital setting, benzodiazepines are primarily used as a skeletal muscle relaxant during seizure activity, and secondarily for its amnesic properties, during Cardioversion and TCP. Benzodiazepines are absorbed from the GI tract and metabolized in the liver. Onset of action when administered IV is 1 to 5 minutes and less than 15 minutes when administered intramuscularly. Like other benzodiazepines, it has no effect on pain.

Side Effects: Can cause laryngospasm, bronchospasm, dyspnea, respiratory depression and arrest, bradycardia, tachycardia, PVCs and retching. Drug should not be given to patients with a history of narrow-angle glaucoma, in shock, with signs of inadequate tissue perfusion, alcoholic coma, or with known sensitivity to the drug, or allergies to cherries (for oral preparations only). ALWAYS monitor and document respirations when giving this drug.

Typical Preparations- 2mg/2ml, 10mg/2ml and 5mg/5ml vials

Dose: Adult: Cardioversion and TCP: 1 to 2mg Slow IV push. May be given PTC to awake patients.

Seizures: 5-10mg IM or 2.5-5mg IV/IO

Pediatric: Seizures: 0.2mg/kg IM with maximum IM dose 10mg or
0.1mg/kg IV/IO with maximum IV/IO dose 2.5-5mg

MORPHINE SULFATE - Narcotic analgesic – Morphine Sulfate is a potent CNS depressant used with patients experiencing pain thereby reducing discomfort, apprehension and fear. It also has certain hemodynamic properties such as decreased systemic vascular resistance that can lead to decreased myocardial oxygen demands. Used for the severe pain associated with myocardial ischemia and/or myocardial infarct not relieved by Nitroglycerin. Used for severe pain associated with isolated extremity fractures.

Side Effects: Respiratory depression, hypotension, nausea & vomiting. Not recommended for use in the initial acute stages of CHF and PE because of the potential for respiratory compromise. Do not use in situations where the close monitoring of mental status is required (as in, head injury, multiple system trauma, hypovolemia, abdominal pain and chest trauma.) **Note:** Narcotic effects are reversible with Naloxone (Narcan.) Hypotensive effects are NOT reversible.

Typical Preparations: 1ml Ampule (10mg/ml)

MORPHINE SULFATE Cont.

Dose: Adult: Suspected Acute MI: 2-4mg IV in increments titrated to effect, dosage not to exceed 10mg prior to Base Hospital contact. May give additional doses during RCF.

Adult Trauma: 2mg increments up to 20mg IV for Extremity Trauma and Suspected Hip Fracture
2-4mg increments titrated up to 30mg IV for Burns

Pediatric: Pediatric Trauma: 0.1-0.2mg/kg IV not to exceed 2mg increments up to 5mg IV or 10mg IM in isolated extremity trauma or 20mg total for Burns

NALOXONE - Narcotic antagonist - Naloxone reverses the effects of narcotics or synthetic narcotic agents by binding with central nervous system depressants. Examples of these agents are: Heroin, Methadone, Propoxyphene (Darvon), Pentazocine (Talwin), Meperidine, Morphine, Diphenoxylate (Lomotil), Codeine, Oxycodone (Percodan) and various diarrhea and cough medicines containing any of these medications.

Side Effects: In the absence of narcotics, Naloxone has no perceivable effects. Rapid reversal of narcotic overdose may lead to combative behavior. Use with caution in patients with pre-existing Cardiovascular disorders.

Typical Preparations: 2cc Ampule (1mg/1ml.) 10ml Vial (4mg/10ml.) 1ml Ampule/Vial (0.4mg/1ml)

Dose: Adult: 1.0-2.0mg IV, IM

Pediatric: 0.1mg/kg IV, or ET as initial dose.

NITROGLYCERINE - Smooth muscle relaxant - Rapid, direct vasodilatation effect on both arterial and venous vessels causing venous pooling of blood. Also causes vasodilation of coronary arteries, thereby increasing perfusion of ischemic myocardium tissue. This action reduces myocardial work and oxygen consumption thereby leading to pain relief. In CHF and Pulmonary Edema, Nitroglycerine is used to decrease pre-load and after-load, improving cardiac output. Nitroglycerin is contraindicated with signs of inadequate tissue perfusion, suspected RVI as indicated by a 12-lead EKG and with recent use of any sexual enhancement medications.

Side Effects: Hypotension, headache and/or flushing

Typical Preparations: Spray 0.4mg metered dose. Bottle 1/150gr = 0.4mg per tablet

Dose: Adult: Suspected Acute MI: 1 metered dose sprayed onto the tongue, or 1 tablet sublingually. May repeat with signs/symptoms of adequate perfusion. Consider MS for pain management when NTG is contraindicated (recent use of any sexual enhancement medication)
CHF/Pulmonary Edema: May repeat with signs/symptoms of continued adequate tissue perfusion
Pediatric: Not used in children

OXYTOCIN - Posterior pituitary hormone - Causes the contraction of uterine smooth muscle and plays a role in lactation. Paramedics may monitor this medication during an inter-facility transport.

Side Effects: Hypertension, cardiac dysrhythmias, and anaphylaxis have been reported as potential side effects. Therefore, it is important to monitor vital signs including BP, cardiac monitor, respiratory status and uterine tone. In addition, Oxytocin in excessive doses can cause uterine rupture. **NOTE:** Oxytocin is an optional ALS medication.

Typical Preparations: 10 units/1ml Ampule

Dose: Adult: 10-20 units in 1000ml NS. Titrate to sustain uterine contractions and control uterine atony.

PHENYLEPHRINE HYDROCHLORIDE - Direct-acting adrenergic agent, vasoconstrictor - A synthetic sympathomimetic compound structurally similar to Epinephrine and Ephedrine. Used topically it acts as a potent local vasoconstrictor and may reduce the chance of mucosal hemorrhage during nasal intubation.

Side Effects: Although rare, systemic absorption may lead to alpha-adrenergic effects such as a transient rise in blood pressure, and/or pulse rate. Caution should be used in patients with a known history of diabetes, and/or hypertension. In addition, it may increase the effects of any other prescribed vasopressor agents.

Typical Preparations: 0.5% solution

Dose: Adult: 1 metered dose in the affected nostril, wait 30 seconds prior to attempt at naso-tracheal intubation. May be repeated once without Base Hospital contact.

PROCAINAMIDE – Antidysrhythmic – Procainamide is used in the treatment of ventricular dysrhythmias by suppressing the automaticity of ectopic pacemakers, and slowing interventricular conduction through the Bundle of His.

Side Effects: Hypotension, nausea, vomiting, confusion and seizures are some side effects. Procainamide should be discontinued with signs of inadequate tissue perfusion, QRS segment widening by 50% of its original width, or a total dose of 17mg/kg has been given. Patients presenting with pre-existing QT prolongation and/or Torsade de Pointes should not receive Procainamide. Use caution in administering Procainamide to patients who may be experiencing an acute MI, digitalis toxicity or renal failure. Hypotension may be increased if given with antihypertensive medications, and neurological toxicity may be increased if administered concurrently with Lidocaine.

Typical Preparations: 1gm/10ml Vial.

Dose: Adult: Mix 1gm/250ml NS. **Give 20mg (5ml) slowly over 1 minute via IV push.** Repeat until the dysrhythmia is suppressed **or** to a maximum of 17mg/kg, QRS widens by 50%, or signs of inadequate tissue perfusion develops
May initiate an infusion of 1-4mg/min if rhythm converts with BHO.

Pediatric: Not indicated in the pre-hospital setting.

SODIUM BICARBONATE - Alkalizing agent – Sodium bicarbonate combines with strong acids to form a weak volatile acid, which then will degrade to carbon dioxide and water. The end products are removed via the kidneys or lungs. Sodium Bicarbonate is used primarily late in cardiac arrest, after ventilation has been adequately addressed with BHO. Sodium Bicarbonate is also used in the treatment of Tricyclic antidepressant overdose.

Side Effects: Can cause metabolic alkalosis following overzealous administration. Do **not** mix Dopamine with Sodium Bicarbonate. A precipitate is formed in the presence of Calcium Chloride and NaHCO₃.

Typical Preparations: 50ml syringe (1mEq/1ml)

Dose: Adult: PEA and Asystole: 1mEq/kg IV. Given only with a BHO for patient with known hyperkalemia, or in RCF with an overdose of a Tricyclic antidepressant.

Pediatric: Use restricted to direct Base Hospital Physician order *only*.

**INLAND COUNTIES EMERGENCY MEDICAL AGENCY
ALS MEDICATIONS**

**REFERENCE: 3001
EFFECTIVE: 10/01/07
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VERAPAMIL - Slow channel calcium blocker - Slows AV conduction and prolongs the refractoriness of the AV node. Verapamil inhibits tachycardias caused by a re-entry mechanism (PSVT). It decreases the rapid ventricular response seen in Atrial Flutter and Atrial Fibrillation, decreases myocardial oxygen demand, and causes coronary artery and peripheral venous vasodilation. However, Verapamil is considered a second line drug to Adenosine in the treatment of narrow-complex tachycardia.

Side Effects: Systemic hypotension is the main side effect of Verapamil. In addition, it should not be administered to any patient exhibiting symptoms of severe hypotension, cardiogenic shock, pulmonary edema, patients in ventricular tachycardia, receiving intravenous beta blockers, or diagnosed with Wolff-Parkinson-White syndrome.

Typical Preparations- 2ml Ampoules (2.5mg/ml)

Dose: Adult: 5mg IV over 3 minutes, repeat dose 10mg IV after 15 minutes. May be given in RCF for PSVT, or upon Base Hospital order.

Pediatric: Not indicated in pre-hospital setting at this time.

APPROVED: ON FILE

ICEMA Medical Director

Date

Sm/07

ADULT RESPIRATORY EMERGENCIES

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

FIELD ASSESSMENT/TREATMENT INDICATORS

Chronic symptoms of pulmonary disease, wheezing, cough, pursed lip breathing, decreased breath sounds
Accessory muscle use, anxiety, ALOC or cyanosis

BLS INTERVENTIONS

1. Reduce anxiety, allow patient to assume position of comfort
2. Administer oxygen as clinically indicated, obtain O₂ saturation on room air, or on home O₂ if possible

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, including advanced airway if indicated. Obtain O₂ saturation on room air, or on home O₂ if possible
2. Nebulized Albuterol 2.5mg, with Atrovent 0.5mg may repeat times two (2)
3. For agencies utilizing Continuous Positive Airway Pressure (CPAP)
 - a. Obtain and document O₂ saturation levels every 5 minutes
 - b. Apply and begin CPAP @ "0"cms. Instruct patient to inhale through nose and exhale through mouth.
 - c. Slowly titrate pressure in 3cm increments up to a maximum of 15cms according to patient tolerance while instructing patient to continue exhaling against increasing pressure.
 - d. CPAP should be continued until patient is placed on CPAP device at receiving hospital ED.
 - e. Document CPAP level, O₂ saturation, vitals, patient response and adverse reactions on appropriate form
4. Consider advanced airway per protocol Reference #4029 Nasotracheal Intubation
5. Base hospital physician may order additional medications or interventions as indicated by patient condition.

ACUTE ASTHMA/BRONCHOSPASM

FIELD ASSESSMENT/TREATMENT INDICATORS

History of prior attacks, associated with wheezing, diminished breath sounds, or cough.
A history of possible toxic inhalation, associated with wheezing, diminished breath sounds, or cough
Suspected allergic reaction associated with wheezing, diminished breath sounds or cough

BLS INTERVENTIONS

1. Reduce anxiety, allow patient to assume position of comfort
2. Administer oxygen as clinically indicated, humidified oxygen preferred

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, obtain O₂ saturation on room air if possible.
2. Nebulized Albuterol 2.5mg, with Atrovent 0.5mg may repeat times two (2).
3. For signs of inadequate tissue perfusion initiate IV bolus of 300cc NS. If signs of inadequate tissue perfusion persist may repeat fluid bolus.
4. For agencies utilizing Continuous Positive Airway Pressure (CPAP).

- a. Obtain and document O₂ saturation levels every 5 minutes
 - b. Apply and begin CPAP @ “0”cms. Instruct patient to inhale through nose and exhale through mouth.
 - c. Slowly titrate pressure in 3cm increments up to a maximum of 15cms according to patient tolerance while instructing patient to continue exhaling against increasing pressure.
 - d. CPAP should be continued until patient is placed on CPAP device at receiving hospital ED.
 - e. Document CPAP level, O₂ saturation, vitals, patient response and adverse reactions on appropriate form
5. If no response to Albuterol, give Epinephrine 0.3mg SC. Contact Base Hospital for patients with a history of coronary artery disease, history of hypertension or over 40 years of age prior to administration of Epinephrine
 6. May repeat Epinephrine 0.3mg SQ after 15 minutes
 7. For suspected allergic reaction, consider Diphenhydramine 25mg IV, or 50mg IM
 8. For persistent severe anaphylactic shock administer Epinephrine 0.1mg (1:10,000) IV slow push. May repeat as needed to total dosage of 0.5mg
 9. Consider advanced airway per protocol Reference #4029 Nasotracheal Intubation
 10. Base hospital physician may order additional medications or interventions as indicated by patient condition.

ACUTE PULMONARY EDEMA/CHF

FIELD ASSESSMENT/TREATMENT INDICATORS

History of cardiac disease, including CHF, and may present with rales, occasional wheezes, jugular venous distention and/or peripheral edema

BLS INTERVENTIONS

1. Reduce anxiety, allow patient to assume position of comfort
2. Administer oxygen as clinically indicated. For pulmonary edema with high altitude as a suspected etiology, descend to a lower altitude and administer high flow oxygen with a non re-breather mask
3. Be prepared to support ventilations as clinically indicated.

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, Obtain O₂ saturation on room air if possible
2. Nitroglycerine 0.4mg sublingual/transmucosal with signs of adequate tissue perfusion. May be repeated as long as patient continues to have signs of adequate tissue perfusion. **If a Right Ventricular Infarction is suspected, the use of nitrates is contraindicated.**
3. For agencies utilizing Continuous Positive Airway Pressure (CPAP)
 - a. Obtain and document O₂ saturation levels every 5 minutes
 - b. Apply and begin CPAP @ “0”cms. Instruct patient to inhale through nose and exhale through mouth.
 - c. Slowly titrate pressure in 3cm increments up to a maximum of 15cms according to patient tolerance while instructing patient to continue exhaling against the increasing pressure.
 - d. CPAP should be continued until patient is placed on CPAP device at receiving hospital ED.
 - e. Document CPAP level, O₂ saturation, vitals, patient response and adverse reactions on appropriate form
5. Consider advanced airway per protocol Reference #4029 Nasotracheal Intubation
6. Base hospital physician may order additional medications or interventions as indicated by patient condition.
7. In radio communication failure (RCF) the following medications may be utilized
 - a. Dopamine 400mg in 250cc NS titrated between 5 – 20mcg/min to maintain adequate tissue perfusion
 - b. Furosemide 40mg-100mg IV or 2 times the daily dose to maximum of 100mg IV
 - c. Nebulized Albuterol 2.5mg with Atrovent 0.5mg after patient condition has stabilized

APPROVED: ON FILE

Medical Director, ICEMA Date

ON FILE

Health Officer, San Bernardino County Date

ON FILE

Health Officer, Inyo County Date

ON FILE

Health Officer, Mono County Date

ON FILE

Executive Director, ICEMA Date

PEDIATRIC RESPIRATORY EMERGENCIES
(Birth to 14 Years of Age)

FIELD ASSESSMENT/TREATMENT INDICATORS

Asthma
Toxic Inhalation
Difficult Breathing

BLS INTERVENTIONS

1. Assess environment and determine possible causes
2. Remove patient from suspected source and decontaminate as indicated
3. Recognize s/s of respiratory distress for age
4. Reduce anxiety, assist patient to assume POC
5. Oxygen administration as clinically indicated, (humidified oxygen preferred)

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible
2. Nebulized Albuterol 2.5 mg with Atrovent may repeat times two (2)
 - a. 1 Day to 12 months – Atrovent 0.25mg
 - b. 1 year to 14 years – Atrovent 0.5mg
3. If no response to Albuterol and Atrovent, consider Epinephrine (1:1000) 0.01mg/kg SC not to exceed adult dosage of 0.3mg
4. Obtain vascular access at a TKO rate
5. Consider Protocol Reference #7011 Pediatric Allergic Reaction if allergic reaction suspected
6. Base hospital physician may order additional medications or interventions as indicated by patient condition.

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 Medical Director, ICEMA Date Health Officer, Inyo County Date

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 Health Officer, San Bernardino County Date ON FILE
 Health Officer, Mono County Date

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 Executive Director, ICEMA Date

PEDIATRIC ALLERGIC REACTION
(Birth to 14 Years of Age)

FIELD ASSESSMENT /TREATMENT INDICATORS

Signs and Symptoms of an Acute Allergic Reaction

History of Exposure to Possible Allergen

BLS INTERVENTIONS

1. Recognize s/s of respiratory distress for age
2. Reduce anxiety, assist patient to assume POC
3. Oxygen administration as clinically indicated, (humidified oxygen preferred)
4. Assist patient with self-administration of prescribed Epinephrine device
5. Assist patient with self-administration of prescribed Diphenhydramine

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible
2. Nebulized Albuterol 2.5 mg with Atrovent may repeat times two (2)
 - a. 1 Day to 12 months – Atrovent 0.25mg
 - b. 1 year to 14 years – Atrovent 0.5mg
3. If no response to Albuterol and Atrovent, consider Epinephrine (1:1000) 0.01mg/kg SC not to exceed adult dosage of 0.3mg
4. For symptomatic hypotension with poor perfusion, consider fluid bolus of 20ml/kg of NS not to exceed 300ml NS and repeat as indicated.
5. Diphenhydramine 1mg/kg slow IV or 2 mg/kg IM, not to exceed adult dose of 25mg IV/IO or 50mg IM.
6. Establish additional IV access if indicated
7. For anaphylactic shock (e.g., no palpable radial pulse and a depressed level of consciousness) administer epinephrine dose 0.01mg/kg (1:10,000) IV/IO up to 0.05 mg/kg
8. Base Hospital may order additional medication dosages and additional fluid boluses

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	Medical Director, ICEMA	Health Officer, Inyo County
	Date	Date
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	Health Officer, San Bernardino County	Health Officer, Mono County
	Date	Date
	<u>ON FILE</u>	
	Executive Director, ICEMA	
	Date	

**ADULT TRAUMA
Age 15 years and Over**

If in the pre-hospital provider's judgement, the patient has been involved in a trauma incident, which because of a high-energy exchange causes the provider to be highly suspicious that the patient has the potential to be severely injured, the patient should be entered into the trauma system.

FIELD ASSESSMENT/TREATMENT INDICATORS

Refer to Protocol Reference # 8010 Adult Trauma Triage Criteria

BLS INTERVENTIONS

1. Assess environment and extrication as indicated
2. Airway management as indicated (OPA/NPA, BVM or ETAD)
3. Transport or ALS intercept to closest most appropriate facility or trauma center
4. For a Traumatic Full Arrest, an AED may be utilized per Protocol Reference #6015
5. Manage special considerations
 - a. Head and Neck Trauma: Whenever possible protect an injured eye with a rigid dressing, cup or eye shield. Do not attempt to replace a partially torn globe – stabilize it in place with sterile saline soaked gauze. Cover uninjured eye.
 - b. Burns: Protect the burned area
 - i. Do not break blisters or remove adherent materials
 - ii. Remove restrictive clothing/jewelry and cover with dry sterile dressing or sterile burn sheet
 - iii. Calculate BSA and initially classify burn as Minor, Moderate or Major

ALS INDICATIONS

1. Advanced airway as indicated. (Anytime the patients airway cannot be adequately secured by field personnel, transport to the closest appropriate receiving hospital for airway stabilization and transport)
2. Vascular Access as indicated with large bore IV/IO
 - a. BP<90mmHG: Initial Bolus NS IV/IO Wide Open rate until BP>90mmHg, then 300cc/hr
 - b. BP>90mmHG: IV maintenance rate at 300cc/hr
3. In San Bernardino County, contact Trauma Center when the trauma triage criteria are met per protocol Reference #8010. In Inyo and Mono counties contact base hospital.
4. Manage special considerations
 - a. Blunt Chest Trauma: Consider needle thoracostomy for chest trauma with symptomatic respiratory distress
 - b. Isolated Extremity Trauma: For BP>90mmHg consider MS in 2 mg increments up to 20mg IV titrated to pain relief
 - c. Hip Fracture: With an alert/oriented patient consider MS IV in 2 mg increments up to 20mg IV.
 - d. Amputations: Document in narrative that amputated part was given to a designated staff/team member

- e. Burns:
- i. If BP<90mmHg give 300cc fluid bolus may repeat.
 - ii. Calculate fluid rate. Hourly rate = $\frac{(1\text{ml}) \times (\text{wt in kg}) \times (\% \text{BSA})}{2}$
 - iii. MS 2-4mg increments IV push up to 30mg and titrate slowly.
 - iv. Nebulized Albuterol 2.5mg with Atrovent 0.5 mg may repeat times two (2)

5. Base Hospital may order additional medication dosages and additional fluid boluses.

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	Health Officer, San Bernardino County	Date	Health Officer, Mono County	Date
	<u>ON FILE</u>			
	Executive Director, ICEMA	Date		

**PEDIATRIC TRAUMA
Birth – 14 Years of Age**

If, in the pre-hospital provider's judgement, a patient has been involved in a trauma incident, which because of the potential of a high energy exchange, causes the provider to be highly suspicious the patient has the potential to be severely injured, the patient should be entered into the trauma system

FIELD ASSESSMENT/TREATMENT INDICATORS

Refer to Protocol Reference # 8012 Pediatric Trauma Triage Criteria

Pediatric trauma assessments are based upon color, temperature, respirations and level of consciousness

BLS INTERVENTIONS

1. Assess environment with extrication as indicated
2. Airway management as indicated OPA/NPA, BVM or ETAD
3. Transport or ALS intercept to closest most appropriate facility or trauma center
4. For a Traumatic Full Arrest, an AED may be utilized per Protocol Reference #6015
5. Manage special considerations
 - a. Head and Neck Trauma: Whenever possible protect an injured eye with a rigid dressing, cup or eye shield. Do not attempt to replace a partially torn globe – stabilize it in place with sterile saline soaked gauze.
 - b. Amputations: Document in narrative that amputated part was given to designated staff at trauma center.
 - c. Burns: Protect the burned area.
 - i. Do not break blisters or remove adherent materials
 - ii. Remove restrictive clothing/jewelry and cover with dry sterile dressing or sterile burn sheet
 - iii. Calculate BSA and initially classify burn as Minor, Moderate or Major

ALS INTERVENTIONS

1. Advanced airway as indicated. (Anytime the patient's airway cannot be adequately secured by field personnel, transport to the closest appropriate receiving hospital for airway stabilization and transport)
2. Vascular Access as indicated with large bore IO/IV
 - a. Unstable: Establish appropriate vascular access. Administer 20ml/kg NS bolus IO/IV, and evaluate for central/peripheral pulses, and/or increased level of consciousness
 - b. Stable: Establish vascular access and maintain IV rate at TKO.
3. In San Bernardino County, contact Trauma Center when the trauma criteria are met per protocol Reference #8012. In Inyo and Mono counties contact Base Hospital.
4. Manage special considerations
 - a. Blunt Chest Trauma: Consider needle thoracostomy for chest trauma with symptomatic respiratory distress
 - b. Isolated Extremity Trauma: MS 0.1 mg/kg IV not to exceed 2 mg increments to a total of 5mg IV/IO or MS 0.2 mg/kg IM to a total of 10mg IM, titrated to pain relief.

c. Burns:

- i. Calculate fluid rate. Hourly rate =
$$\frac{(1\text{ml}) \times (\text{wt in kg}) \times (\% \text{BSA})}{2}$$
- ii. MS 0.1mg/kg titrated slowly IV/IO for pain relief (total not to exceed 20mg).
- iii. Nebulized Albuterol 2.5mg with Atrovent may repeat times two (2)
 - a. 1 day to 12 months –Atrovent 0.25 mg
 - b. 1 year to adult –Atrovent 0.5mg

5. Base Hospital may order additional medication dosages, interventions and fluid boluses

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	Medical Director, ICEMA	Date	Health Officer, Inyo County	Date
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	<u>Health Officer, San Bernardino County</u>	<u>Date</u>	<u>ON FILE</u>	
			Health Officer, Mono County	Date
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	<u>Executive Director, ICEMA</u>	<u>Date</u>		